

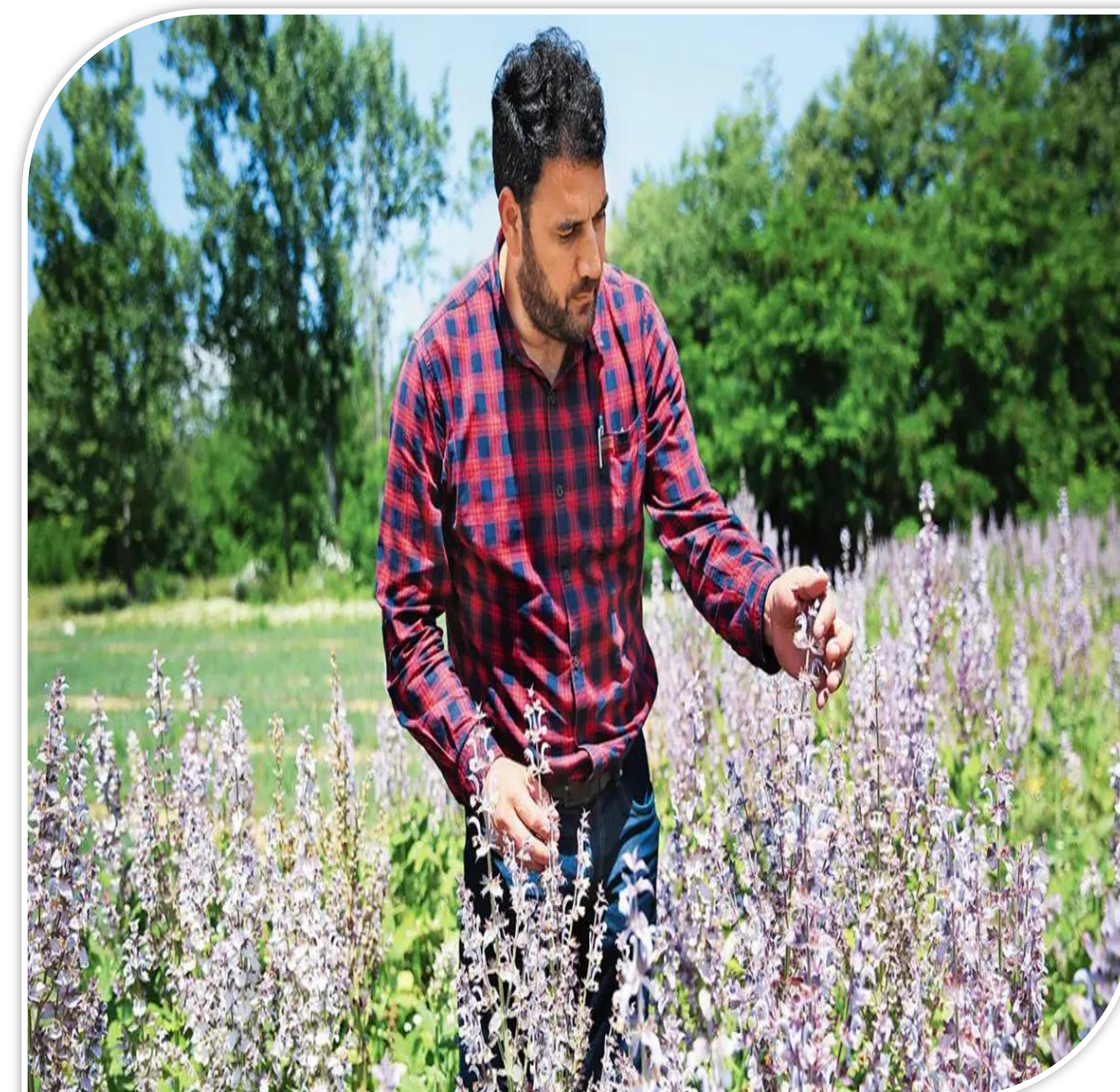
CSIR IN MEDIA



CSIR

NEWS BULLETIN

11 TO 15 AUGUST 2022



BRO to build first steel slag road on border

CSIR-CRRI

15th August, 2022

NEW DELHI: In a first, the Border Road Organization (BRO) will take up the construction of a pilot road stretch in Arunachal Pradesh using steel slag, which can withstand heavy rains and adverse climatic conditions. If it's found successful, this can become a big solution for building durable roads along the strategic areas.



The project has been initiated after the success of using 100% steel slag on a port connectivity road in Gujarat, which has longer life and built at low cost. This 1.2 km Hazira port connectivity stretch was a research and development (R&D) project carried out by CSIR-CRRI in collaboration with a major steel manufacturer and steel ministry. The project was developed with the aim to “convert waste to wealth” and around one lakh tonne of processed steel slag aggregates have been utilized here substituting the natural aggregates, said director of CSIR-CRRI, Dr Ranjana Aggarwal.

The project has entered the India Book of Records and Asia Book of Records.

The National Highways Authority India (NHAI) will also use the steel slag for construction of a portion on Mumbai-Goa highway and the Indian Railways has also sanctioned a major R&D project to CSIR-CRRI to explore possible utilization of steel slag aggregate as railway ballast for track construction and maintenance. The success of these pilots promises a huge potential to reduce the demand of aggregates – stone chips and other raw materials – in road and rail projects at a time when the availability of traditional raw materials is becoming a bigger challenge due to environmental concerns.

India is the world's second largest steel producing country and annually around 195 lakh tonnes of steel slag is generated and this quantity is slated to increase to 600 lakh tonne by 2030. "Majority of steel slag after metal recovery ends as a waste dump or as land fill material and such a huge volume cannot be dumped for environmental and economic reasons. So, we have developed the customized steel slag valorization technology to convert raw steel slag as road making aggregates," said Satish Pandey, principal scientist and project leader of the Steel Slag road project.

The CRRI director said this innovation by the scientists will go a long way to reduce dependence on traditional aggregates for road construction and help protect the environment. "There has been a huge focus on how to utilize the wastes and getting value from them. Our scientists are working on converting the rice straw (parali) and other agri-wastes to bitumen. There is good progress," she said.

We The People: The Scientist Who Dreamt Of Growing Lavender In J&K

CSIR-IIIM

15th August, 2022

Vast fields with purple flowers, blanketed in a pleasant aroma. A narrow path beside a gushing stream takes you to lavender fields. In the rose gardens here, farmers pluck the flowers to extract rose oil. A hutment surrounded by aromatic crops is used as a farm office by scientists and research scholars. Extremely keen to develop this aromatic



paradise as a knowledge and demonstration centre of production and processing for medicinal and aromatic crops is Dr Shahid Rasool, senior scientist at CSIR-Indian Institute of Integrative Medicine, Jammu, and in-charge of its field station at Pulwama; around 35 km from Srinagar.

“Farmers, agri-entrepreneurs and research scholars visit this research centre. We have students and teachers from schools, colleges and universities visiting us to know how we work, and conduct research, development and dissemination of technologies,” he says. In one corner of the broad arable land of the field station, concrete buildings house army soldiers. The army occupied the building and the laboratory of the field station at Pulwama in 1990 when insurgency broke out in the Valley. The army used this building as the administrative complex and research facility. The army has also constructed towers for the safety and security of the camp.

Dr Shahid Rasool took over as scientist-in-charge of the CSIR field station in 2020. For the past many years, he has been on a mission to popularise lavender cultivation across Jammu and Kashmir and make the region one of the largest producers of the flower. He passionately talks about lavender and the man who brought it to the region. “If there is lavender in J&K, it is

because of Dr Akhtar Hussain. He introduced lavender in Kashmir in the 1970s at this field station when no one had thought of it. Despite all odds, he made everyone believe that growing lavender in J&K could be one of the alternative crops,” Dr Rasool says.

The burgeoning lavender cultivation has given a lush purple look to fields and sloping land tracts of Jammu and Kashmir, especially in Kupwara and Budgam districts in the Valley and Baderwah in the Chenab Valley of Jammu. CSIR’s farm in Pulwama has become a new attraction for farmers, researchers, and agri-entrepreneurs. Dr Rasool says lavender will not only complement areas under apple orchards in the Valley but also aid farmers facing trouble cultivating rain-fed crops. “Throw lavender at any spot in Kashmir and it will grow there,” he says. “I think we are on the cusp of a purple revolution.”

In the Valley, dry conditions prevailed from March to mid-June this year with rivers and their tributaries across the region recording a drop in water levels affecting the paddy crop. The scarcity of water throughout April, May, and June, led to a drought-like situation within a larger part of south Kashmir. The most affected were people living in the higher reaches. Farmers for the past many years have been advised by the government to cultivate alternative crops under moisture-stressed conditions, and Dr Rasool says lavender, a perennial shrub belonging to the Lamiceae family, is the best alternative. Along with being an aesthetic plant, he says, it’s also an economically remunerative crop, with one kg of oil extracted from the flowers fetching above Rs 10,000. This oil is used in the flavour and fragrance industry.

For the first two years of plantation, there are no immediate returns. Dr Rasool says farmers start getting profits only after three years of production of its highly valued oil, and dry flowers. “It’s one of the best cash crops in the world, where a farmer with very little input can easily earn Rs 4-5 lakh per hectare, annually,” he adds. “The crop is pest and disease free as it is cultivated on organic protocols. After cultivation, farmers extract oil that has no fixed price. Farmers can sell one kg even for Rs 15,000.” Dr Rasool says it is very easy to cultivate this crop as it attains a height of 2.5-3 ft at the most. “After plantation, a farmer must execute little intercultural operations for the next 15 to 18 years of crop age. In the initial stage, the juvenile plantation requires life-saving irrigation. Once the plant blooms, the flowering spikes

are cut, and the plant is ready to grow again in the next season. One plant can yield several new plants every year,” he adds.

Apples and other fruit crops occupy a huge area in the Kashmir Valley. It has led to a culture of spraying pesticides across the Valley. This chemical ecology has devastated insect pollinators, particularly honey bees. The lavender crop is a wonderful fragrant source of nectar and attracts a huge population of honey bees, making it a viable source of honey production and enhancing the ecosystem of insect pollinators.

In Kashmir, CSIR cultivates and distributes the RRL-12 variety of lavender, best suited to grow in the temperate climate that witnesses snowfall. The crop is best suited for cultivation over sun-facing slopes of this region. “Each year, CSIR-IIIM, through its station at Pulwama, distributes lakhs of lavender plants among farmers and growers in the Valley and in Jammu’s Doda district,” says Dr Rasool. He says that experiments are on to cultivate lavender on a large scale in the frontier district of Kupwara. “In collaboration with J&K Science, Technology & Innovation Council, we have started Project-K 5000 in Kupwara to cultivate, process and utilise lavender and other high-value aromatic crops like rose, mint, and rosemary,” he adds.

Bulgaria is currently the biggest producer of lavender and generates around 50 per cent of lavender oil—100-130 metric tons—in the world from around 3,500 hectares of farmland. Even lavender honey from its fields sells at a premium. “If we continue at this pace of cultivation and favourable climatic conditions, we can surpass the production and productivity statistics of Bulgaria,” he says. In one hectare, J&K produces 50 to 60 kg of oil whereas Bulgaria yields 200 to 250 kg. “We require high-yielding varieties,” he notes.

Supreme Court allows demolition of Noida towers on August 28

CSIR-CBRI

12th August, 2022

The Supreme Court on Friday fixed August 28 for the demolition of two towers in Supertech's Emerald Court project in Noida, extending by a week the earlier deadline set for August 21 after the Roorkee-based Central Building Research Institute (CBRI) informed the top court that the work on planting explosives in the building has just begun, and that other preparations can only be finished by August 25.



The court also allowed the Noida authority a buffer period of seven days between August 29 and September 4, to take into account any marginal delay on account of technical reasons or weather conditions.

Relying on a status report submitted on Friday by the Noida authority, a bench of justices Dhananjaya Y Chandrachud and AS Bopanna said, “Noida has stated that in view of the fact that certain work prior to demolition has to be completed by August 25, and as recommended by CSIR-CBRI, the date of demolition may be confirmed as 28 August 2022....the request made by Noida is acceded to.”

The bench said, “All parties including Noida, Supertech Limited, CSIR-CBRI and the demolition agency Edifice Engineering shall strictly abide by the directions which have been issued earlier and those which have been issued above.” The towers were ordered to be demolished by the Supreme Court on August 31 last year on a petition filed by Supertech Emerald Court Apartment Owners' Association. The residents had first approached the

Allahabad high court and succeeded in getting an order of demolition against the two towers in 2014. They complained that the area occupied by the towers was supposed to be a green area and construction on this space amounted to breach of trust by the builder. It was also found that the two towers flouted the minimum distance rule prescribed by the National Building Code, 2005.

While upholding the high court order, the SC ordered compensation for homebuyers (deposit plus 12% interest) who bought flats in the twin towers. Of the 633 persons who booked flats in the twin towers, about 248 homebuyers took an early refund while 133 took flats in other Supertech projects, leaving only 252 homebuyers who have since been receiving refunds.

In its status report, the Noida authority informed the court that the 32-storeyed towers – Apex and Ceyane – will be the tallest buildings ever to be brought down. It added that the expert agency CSIR-CBRI had asked Edifice and Supertech to give assurances regarding required safety measures and risk mitigation steps related to the demolition plan and potential impact on neighbouring buildings of Emerald Court and ATS Village and Gas Authority of India Limited (GAIL) gas pipeline.

The bench said, “Noida will continue to engage with CSIR-CBRI and Edifice Engineering at periodic intervals prior to the date of demolition so that any further requisitions that CSIR-CBRI may have towards the safe conduct of the demolition process are observed.” Advocate Gaurav Agarwal who is assisting the court said that the issue of compensation and refund to homebuyers is still pending.

Supertech informed the court that it had paid CBRI outstanding fees of ₹70 lakh. The balance additional amount payable to Edifice will also be disbursed prior to the demolition, said senior advocate Devadutt Kamat appearing for the interim resolution professional for Supertech, as the company is facing bankruptcy proceedings before National Company Law Tribunal (NCLT).

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From Indelible Ink, Generic Drugs to Infant Foods, How CSIR Drove Growth in Independent India

CSIR-NCL, NEIST, IICT

11th August, 2022

Science, Technology and Innovation has played a crucial role in the development of India in its 75 years of journey. Long period of the colonial rule had robbed India most of her wealth, and more importantly, skills — for employment. Similarly, indigenous technologies were needed for promotion of industry. These would have to be firmly founded on the science, technology and innovation ecosystem. At the time of Independence, very few science and technology organisations existed. The foremost among them was the Council of Scientific and Industrial Research (CSIR), which was founded in 1942, and its first Director General SS Bhatnagar had defined the mandate of CSIR as “the scope of work in each laboratory (of CSIR) could perhaps be best described to be of the form of a continuous spectrum, at one end of which research work of the purest academic type and of the highest quality is carried out and at the other, the technical development of processes and equipment proceeds by stages”.

With the adoption of Science, Technology and Innovation at the time of Independence as the primary driver of India’s growth was therefore a welcome step.

INDIGENOUS TECHNOLOGIES FOR INDEPENDENT INDIA

India had adopted democracy as the model of governance. One of the challenges in conducting elections was to prevent frauds, including double voting by the same person. To prevent this, CSIR’s National Physical Laboratory developed the indelible ink, consisting of silver nitrate. The ink has been used in all the elections since 1962, and is also exported to many countries around the world. It remains one of prized gifts of CSIR to the nation.

Initiating Indigenous Chemicals, Generic Drugs & Pharma Industry

Although the roots of the chemical industry in modern India can be traced to the establishment of Bengal Chemicals and Pharmaceuticals Ltd by Acharya Prafulla Chandra



Ray, much before Independence, a major impetus was needed in different segments of the chemicals industry.

For example, during the green revolution, in order to achieve self-sufficiency in food production, it was essential to prepare indigenously developed agrochemicals. Three laboratories of CSIR, CSIR-Northeast Institute of Science and Technology (NEIST, then RRL), Jorhat; CSIR- Indian Institute of Chemical Technology (IICT, then RRL), Hyderabad and CSIR-NCL developed several processes for making indigenous agrochemicals, which eventually led to setting up of a public sector company – Hindustan Insecticides Ltd — to produce agrochemical-based on CSIR technologies. Soon after, the government set up a company for producing organic chemicals based on technologies made in CSIR-NCL — the Hindustan Organic Chemicals Ltd — making it the first organic chemicals industry in the country. The close interactions between the chemicals industry and academia have continued over the years.

The generic pharmaceutical industry owes much to the adoption of favourable patent regime from the 1970s, and to the chemical processes developed in various CSIR labs. For example, the CSIR made processes to synthesise AZT, used to treat HIV patients, which could be sold for \$2 as against the available worldwide price of \$8,000. Then, CIPLA started manufacturing the drug and the rest is proverbial history.

Moreover, many industrial leaders were directly trained in the CSIR labs before they became successful entrepreneurs. These were the founding steps in the formation of a strong generic pharmaceutical industry in India, most of whom collaborated closely with CSIR laboratories, and other academic institutes, in the following years to make drugs affordable.

ROLE IN DEVELOPING INFANT FOODS

The need for high nutritional infant food drove the scientists in 1950s and 1960s to consider milk powder as an attractive option. However, the challenge was that the predominantly used buffalo milk was high in fat content. A committee of international experts by the government considered converting this milk into powder as highly challenging. New technologies were

needed to address the problem. CSIR's Central Food Technology Research Institute then developed processes to remove fat from the milk, and made milk powder. These products were considered fit for consumption after extensive clinical trials conducted in CMC, Vellore, and then consequently adopted by Amul Industries. The infant food market thus went through a major transformation due to this development.

FUTURE OF SCIENCE, TECHNOLOGY AND INNOVATION

There are many more achievements of science, technology and innovation in the Independent India, which make interesting facts to read. Yet, the challenges for future remain intimidating. Sustainability of all processes used in day-to-day lives, and that in industrial processes, are the key challenges for the present science and technology community. The well-developed technology ecosystem in India appears poised to address these challenges. Support, encouragement and prayers of the public, and those of policy makers, would propel India into a secure future in all these matters.

CSIR-NIIST to host national seminar on IPR

CSIR-NIIST

11th August, 2022

CSIR-NIIST seminar to mark launch of IPR training course, host experts on patent research and laws

The National Institute for Interdisciplinary Science and Technology (NIIST), a constituent laboratory of the Council of Scientific and Industrial Research (CSIR), will host a national seminar on August 22 on Intellectual Property Rights (IPR) to commemorate the launch of a month-long skill development training course in IPR.

The course, set to commence on August 16, aims to churn out professionals who could go on to become IPR experts or patent agents. A spokesman for CSIR-NIIST said Saji Gopinath, Vice-Chancellor, Kerala University of Digital Sciences, Innovation and Technology (Digital University Kerala), will inaugurate the seminar. Experts will speak on topics ranging from fundamentals of IPR to patent laws and research.

RS Praveen Raj, Principal Scientist, CSIR-NIIST and Course Coordinator, will deliver the keynote on the 'Philosophy of Patents.' Others addressing the seminar on related topics include V Moni, Principal Scientist, and Nishy P, Chief Scientist, CSIR-NIIST; Ajit Prabu, Chief Scientist, and Safikh S, Technical Officer, Kerala State Council for Science, Education and Technology; and Rakesh CR, Patent Consultant.

Rewarding career

Praveen Raj, who handles IP management and technology transfer at CSIR-NIIST, told BusinessLine that a career as an IP professional (IPR attorneys, patent agents, examiner of patents or IP management experts) is highly rewarding. The one-month course, titled 'Intellectual Property Rights, Patent drafting and Practice', is part of skill development programmes for scientific personnel and students.

More Indians are filing patent applications, but IPR has not gained enough traction among science students in Kerala, Raj said. Global companies pay \$5,000 (around ₹2 lakh) and above for preparing a patent document. “A skilled IP professional can demand service charges in tens of thousands of rupees locally. The required technical skills demand a good science background and extensive training, in addition to knowledge of IPR laws,” he added.

1st Ladakh AgriTech Mela begins in Leh

CSIR-IMTECH

10th August, 2022

Leh, Aug 10: The first Ladakh AgriTech Mela began with an inaugural function organised by STI HUB Ladakh in collaboration with LAHDC Leh, CSIR-IMTECH Chandigarh and NIELIT Leh.



Lt. Governor, Ladakh, RK Mathur attended the inaugural function as the chief guest whereas the guests of honours were Dy Chairman, LAHDC Leh, Tsering Angchuk; EC Agriculture, Stanzin Chosphele; EC RDD Tashi Namgyal Yakzee; Principal Secretary Health, Dr. Pawan Kotwal; Commissioner Secretary Skill Development, Padma Angmo; Secretary Agriculture, Ravinder Kumar; DC Leh Shrikant Suse and Director CSIR-IMTECH Chandigarh, Sanjeev Ghosla.

Earlier, the officials inaugurated Science, Technology, and Innovation (STI) HUB at the office of NIELIT Leh. The STI Hub is a collaborative project by CSIR-IMTECH Chandigarh, PGIMER Chandigarh and NIELIT Leh to facilitate economic development by supporting and nurturing young innovators to establish small, medium – business enterprises.

In his address, EC Agriculture, LAHDC Leh, Stanzin Chosphele highlighted the need for conducting such an innovative fair for the progressive farmers of Ladakh. He stated that it is an opportunity for the farmers, young entrepreneurs and students as well as the general public to participate in sharing innovative knowledge on a single platform. He stressed the importance of utilising modern-day technologies for agricultural practices in Ladakh while highlighting the success story of Ladakh Green House. EC Chosphele urged local farmers to visit all the stalls at the exhibition site and make the best out of this AgriTech Fair in Leh. He

appreciated the efforts of the organising team, including Dy Director, NIELIT Leh, for all the hard work behind organising this mega event for the progressive farmers.

LG Mathur addressed the gathering and expressed his gratitude to all the stakeholders involved in conducting the 1st Ladakh AgriTech Mela. LG Mathur attended the event virtually.

Secy Agriculture, Ravinder Kumar, and Director CSIR-IMTECH Chandigarh, Sanjeev Ghosla also addressed the gathering.

DG NIELIT, Dr. MM Tripathi addressed the gathering virtually and expressed gratitude to the LAHDC Leh and the UT Administration, Ladakh for their support in conducting the AgriTech Mela.

The theme of this year's AgriTech Mela-2022 is "Innovative Farming". More than 50 stalls for the exhibitors from the Agriculture Departments, Agri Industry, Startups, Research Institutions, MSMEs, NGOs, Self Help Groups (SHGs), Progressive Farmers, and Local Vendors.

Industry Experts, Scientists from across the nation, HoDs of Agriculture and its Line Departments, Officials of NIELIT, STI HUB & CSIR-IMTECH, head of research Institutes of Leh, and a large number of progressive farmers along with students attended the inaugural event today. All the local collaborators of the event were felicitated in the end.



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